A NEW SEED BUG, *EMBLETHIS DENTICOLLIS* HORVÁTH (HETEROPTERA: LYGAEIDAE) FOR BRITAIN, WITH A KEY TO NYMPHS OF *EMBLETHIS*

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Emblethis Fieber is a large, problematic and predominantly Palaearctic seed bug genus, with species particularly abundant in the Irano–Turanian subregion. Only one species, *E. verbasci* (Fab.), a rare British Red Data Book species, was recorded from the British Isles by Southwood and Leston (1959). This bug has subsequently been shown to be *E. griseus* (Wolff), a species with a markedly disjunct British distribution (Judd, 1996; Judd & Hodkinson, 1998). It is known from only the Scilly Islands, Whitesand Bay, Cornwall (the classic locality), and intermittently from Deal, Kent, where it may not be established (Walker, 1900; Massee, 1952).

A second British species, *E. denticollis* Horváth, can now be added to the British list, having been collected from seven separate locations in southern England since 1991. This is a widely distributed Palaearctic and Oriental species. First records for the Channel Islands in 1989, and for two sites in the most south-western part of the Province of Zeeland in the Netherlands in 1992, suggest that it is extending its range in north-west Europe (Aukema, 1996; Judd, 1996).

FIRST BRITISH RECORDS OF *E. DENTICOLLIS*

An adult female *E. denticollis* was swept by N. Straw in Lodge Inclosure, Alice Holt Forest, Hampshire (SU800428) on 15.x.1991 from the edge of a ca. 8 m wide, sheltered, mown ride, running through deciduous woodland. Subsequent records indicate that *E. denticollis* has established in south-east England and is expanding its range. Adults were collected with nymphs by S. Judd near Wickhambreaux, Kent (TR239597), on 22.viii.1993. These were from a population restricted to a 10 m stretch of an exposed, south-east facing, vegetated sandy bank, no more than a metre wide or high, running for 50 m along a single track lane, bordering a recently fallow and weedy, arable field. P. Kirby (pers. comm.) recorded it from Bedfordshire at Bedford (TL052488) on 13.vi.1996, amongst dry grass on sandy ground beside a disused railway line, and from Sandy Heath (TL204492) on 15.ix.1996 amongst sparse ruderal vegetation in a sand quarry. He also found it in Cambridgeshire at Willersmill Wildlife Park (TL394483) on 2.ix.1996, amongst ruderal vegetation on calcareous soil. J. Denton (pers. comm.) has recorded two discrete populations, again in Hampshire, at Oakhanger (SU73-36-), six miles from the first British locality. Adults and nymphs were recorded in abundance from horse-grazed paddocks. It was also associated with *Erodium* on bryophyte heathland.

Details of the Channel Islands locations have not been published but all specimens are from Jersey and were taken by S. Judd in the company of W. J. Le Quesne. Adults and nymphs were collected from Portelet and the Route de Noirmont on 22.viii.1989 and at La Moye two days later.

British populations of *E. denticollis* probably arose from recently arrived continental stock, and this may also apply to records for *E. griseus* from Deal. The eurytopic *E. denticollis* may become common and widespread throughout lowland Britain. The true *E. verbasci* is known from France and the Netherlands (Slater, 1964), from where it may also expand into Britain. For this reason, it is discussed in the species diagnoses.

EMBLETHIS DENTICOLLIS HORVÁTH, 1878

Horváth, 1878: p. 79; Wagner, 1954: figs 13, 26; Stichel, 1957–9: p. 227, figs 553, 555; Seidenstücker, 1963: pp. 655–656, figs 10, 27–30, photograph 7a; Puchkov, 1969: pp. 283–284, figs 153.4 & 154.7; Aukema, 1996: figs 2 & 5.

Diagnosis

Emblethis are straw-coloured gonianotine Lygaeidae with extensive brown and black punctures on the head, pronotum and hemelytra. The characteristic broadly explanate pronotal margin embraces the eye, and the appendages are covered with stout erect and semi-erect setae. A key to the genus is urgently required. The most comprehensive accounts are those of Wagner (1954), Stichel (1957–1959) and Seidenstücker (1963). Aukema (1996) separated the Netherlands species.

Emblethis denticollis (Fig. 1a) (5.0–6.0 mm) and *griseus* (5.5–6.6 mm) are generally smaller than *verbasci* (5.5–7.75 mm). The lateral, explanate pronotal margin is narrower than the width of the tylus in *denticollis* and *griseus* but broader in *verbasci*. It is also narrower than the eye width in *denticollis* but just broader in *griseus*. The black punctures on this and the hemelytral explanate margin are isolated in *denticollis* and *verbasci* but merge to form irregular small markings in *griseus*. The lateral pronotal margins converge more distinctly towards the head in *denticollis* than in *griseus* and *verbasci*, which are more parallel sided. The first metathoracic tarsal segment is less than 1.5 × the length of the other two segments in *denticollis*, 1.9–2.1 × as long in *griseus* and 2.1–2.4 × as long in *verbasci*. The second antennal segment is shorter than the width of the vertex in *denticollis* but longer in *griseus* and *verbasci*. Furthermore, *denticollis* are more elongate than the sub-oval *griseus* and *verbasci* and all three species have distinctive pygophores (Figs 2a–c).

Fifth instar nymphs of British *Emblethis*

Brief reference is made to *Emblethis* nymphs by Butler (1923), Puchkov (1958, 1969) and Slater & Sweet (1961) but it is here appropriate to provide full nymphal descriptions and a key. Descriptions have been supplemented by additional non-British material in the Liverpool Museum collection.

The following abbreviations are used: A antennal segment, MWP mesothoracic wing-pads, R rostral segment, S sternum, T tergum, TBL total body length, Ts tarsal segment.

Emblethis Fieber, 1860

Medium length, sub-oval, almost glabrous, brown and yellow nymphs, with a mottled, red abdomen and stout, short setae on the head and appendages. Head moderately declivant, trichobothria absent, tylus not quite reaching apex of A1, and eyes touching, or sometimes embraced by antero-lateral pronotal margins. Pronotum

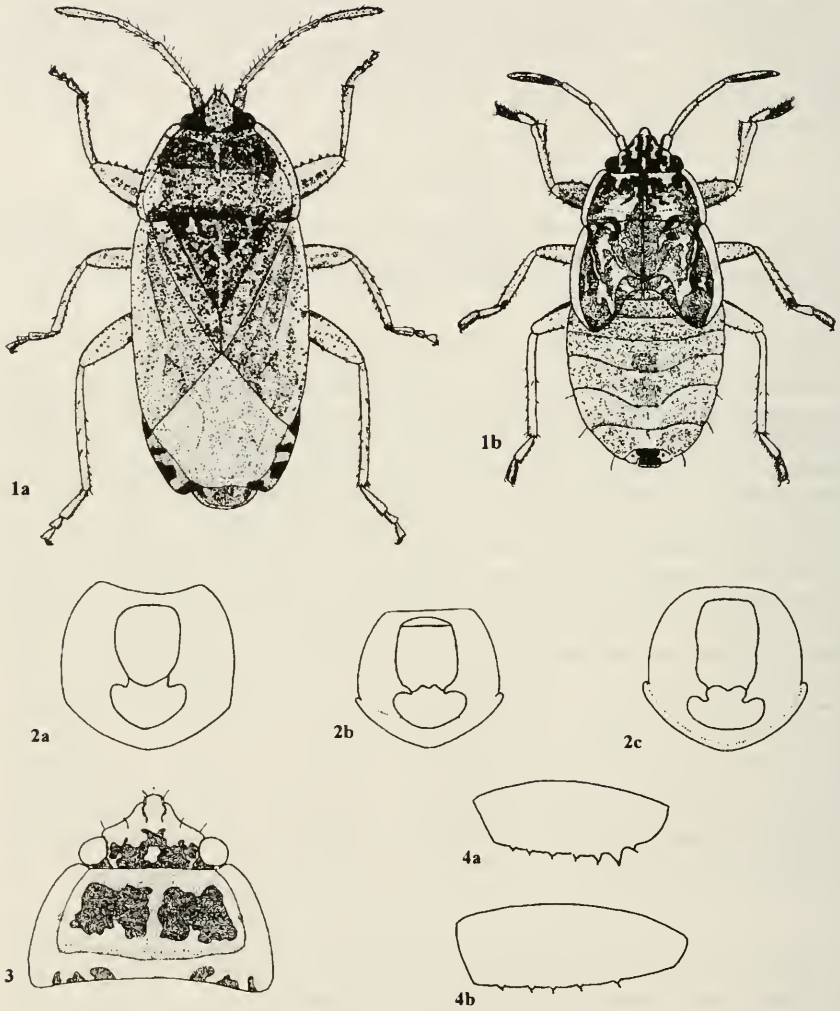

Fig. 1. *Emblethis denticollis*; 1a Adult; 1b Instar 5.
Fig. 2. *Emblethis* pygophores; 2a *E. denticollis*; 2b: *E. griseus*; 2c: *E. verbasci*.
Fig. 3. *E. griseus* instar 5 head and pronotum.
Fig. 4. Instar 5 antero-ventral spines on prothoracic femora; 4a: *E. denticollis*; 4b: *E. griseus*.

trapezoidal to sub-quadrate, with broadly carinate often strongly sinuate lateral margins, a faint transverse posterior impression and deeper longitudinal mesal impression along ecdysial suture. MWP reaching T3. Gland openings, with narrow, rim-like evaporative areas, between T4–5 and T5–6; posterior glands larger and more widely spaced apart. Y-suture absent. Suture T3–4 slightly and T5–6 more strongly curving caudad. S2–3 and S3–4 more deeply impressed and S4–5 curving anteriad,

embracing trichobothria and not reaching abdominal margin. Trichobothria visible in dorsal view, widely spaced on S5, with the pair closer to spiracle 5. Spiracle 4 dorsal, remainder ventral with spiracle 3 often positioned closer to lateral abdominal margin. Prothoracic femora incrassate, with a row of short, fine spines on ventral edge. A1 broader and shorter than A2–4. Rostrum reaching pro- to mesothoracic coxae.

Species examined: *E. angustus* Montandon × 4, *E. brachynotus* Horváth × 1, *E. ciliatus* Horváth × 5, *E. denticollis* × 13, *E. duplicatus* Seidenstücker × 3, *E. griseus* × 35, *E. karamanus* Seidenstücker × 6, *E. verbasci* × 3, *Emblethis* sp. × 45.

Emblethis denticollis Horváth, 1878 (figs 1B,4A)

Colour: Head, pronotum, scutellum and MWP strongly patterned yellow and dark-brown, becoming black on anterior of pronotum and head. Head with five distinct, dorsal, interrupted yellow stripes. Carinate sides of pronotum and MWP yellow-white. Red suffusion sometimes present near eyes, along posterior margins of pronotum and scutellum. Abdomen with numerous small, yellow-white spots, highlighted with brown and red mottling; spots sometimes merging and becoming indistinct. Tergum with distinct red meso-lateral spots on T3–7 and all sutures normally lined with red. Mesal areas on S6–7 and abdominal segments 8–9 brown to brown-black. Appendages yellow; legs, particularly femora, dappled brown; A4, very occasionally apex of A3, Ts1 apices and Ts2 brown to brown-black.

Structure: Body and appendages with very short, adpressed pale pubescence. Prothoracic femora (Fig. 4a) with seven short, fine, dark, antero-ventral spines, with the apical spine more robust. Dark, semi-erect spines on anterior of head, coxae and tibiae, becoming shorter on tarsi, longer and finer on antennae. Rostrum just reaching mesothoracic coxae.

Measurements (mm): TBL 3.9–4.87, head width 0.99–1.13, vertex 0.68–0.77, A1 0.25–0.29, A2 0.59–0.72, A3 0.47–0.54, A4 0.63–0.77, metathoracic femur 1.15–1.35, metathoracic tibia 1.33–1.60, metathoracic Ts1 0.43–0.54, metathoracic Ts2 0.32–0.41.

Specimens measured: × 9, Jersey, La Moye, 24.viii.1989; × 1 Portelet, 22.viii.1989 (coll. S. Judd).

Emblethis griseus (Wolff, 1802) (figs 3,4B)

Colour: Eyes red-brown. Head and pronotum yellow, with interocular area and pronotal lobes brown-black. Scutellum mainly brown, with darker basal corners. MWP yellow with broad, brown, irregularly shaped, mesal markings, extending throughout length. Brown marking extremely variable; sometimes variegated on pronotum, almost absent on scutellum, except for basal corners and very restricted on MWP. Pleura primarily dark-brown. Abdomen with yellow spots, highlighted by brown and some red; spots sometimes faint on margins. Evaporative rim of gland openings, mesal areas on S6–7 and abdominal segments 8–9 brown to black. Red suffusion sometimes evident over body; red most frequently present along sutures, anterior to scent glands and as dark red-brown meso-lateral spots on T4–7. Appendages yellow; tibial and tarsal apices faintly brown, Ts2 and A4 brown and R4 predominantly brown-black.

Structure: Body distinctly oval, with very short, adpressed, pale pubescence. Stout, semi-erect setae on head, coxae, tibiae and tarsi, becoming longer and finer on antennae. Prothoracic femora with an antero-ventral row of seven, small, equal-

sized, fine, dark spines and a faint postero-ventral row (Fig. 4b). Rostrum reaching between pro- and mesothoracic coxae.

Measurements (mm): TBL 3.82–4.95, head width 1.08–1.15, vertex 0.70–0.76, A1 0.27–0.31, A2 0.56–0.63, A3 0.41–0.49, A4 0.56–0.63, metathoracic femur 1.13–1.37, metathoracic tibia 1.35–1.55, metathoracic Ts1 0.49–0.52, metathoracic Ts2 0.31–0.36. Specimens measured: ×7 Cornwall, Whitesand Bay, 13.vii.1985 & ×3 04.viii.1986 (coll. S. Judd).

Key to fifth instar nymphs of British *Emblethis*

1. First metathoracic tarsal segment > or equal to 1.5× length of second tarsal segment. All antero-ventral spines on prothoracic femora equal sized (Fig. 4b). Anterior of head predominantly pale (Fig. 3). TBL 3.8 mm–5.00 mm.
. . . . . *Emblethis griseus* (Wolff)

—First metathoracic tarsal segment < 1.4× length of second tarsal segment. Apical antero-ventral spine on prothoracic femora larger than other spines (Fig. 4a). Head black with 5, irregular, pale, anterior longitudinal stripes (Fig. 1b). TBL 3.9 mm–4.9 mm.
. . . . . *Emblethis denticollis* Horváth

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SHORT COMMUNICATION

Observations of *Ilyocoris cimicoides* (L.) (Hemiptera: Naucoridae) in flight.—Aquatic Hemiptera–Heteroptera exhibit a wide range of polymorphism in wing and flight muscle development (Savage, 1989). Southwood & Leston (1959) state that the Saucer Bug '... possesses fully-developed wings but such reduced musculature that no specimens yet examined have been able to fly: migration probably occurs by nocturnal walking...'

However this bug can often be found in isolated ponds, and must colonize these by some means other than walking. Accidental transference of eggs by waterfowl is one possibility, but the following observations indicate that some individuals disperse on the wing.

On 3–4.ix.1985 Tom Møller and the junior author observed large numbers of *I. cimicoides* flying from a pond in North Zealand, Denmark. Conditions were warm, sunny and calm. Several specimens were found basking on emergent leaves of *Typha*, whilst others sat on leaves of *Potamogeton natans*, and floating pieces of wood. Many took to the air when the breeze abated, but no specimens were seen to take off from the water surface in the manner of Corixids. Their flight was heavy and laboured, but they were able to avoid being caught in a small net. Several were unable to clear the surrounding vegetation and wall, and fell to the ground where they lay still. The stronger fliers appeared to disperse at random, and a soft humming could be heard as bugs passed at close quarters. On the 4.ix. hundreds of bugs took to the air, in a period of about 1 hour.

On 9.iii.97, a single *I. cimicoides* flew low over and landed on the water surface of a wide dyke on 'the Pells', near Lewes, E. Sussex (TQ4011). The weather was unseasonally hot and sunny, and many Corixids and aquatic beetles (*Heterocerus, Helophorus* etc.) were flying around.

Clearly some individuals/populations are able to fly, but it is clearly a rare phenomenon. How far such individuals can disperse is unknown, and the genetic or other factors that regulate this capacity remain enigmatic.—JONTY DENTON, 26 Bow St, Alton, Hants GU34 1NY & CHRISTIAN RØRDAM, Hammersholt Byvej 38, Borstingerød, 3400 Hillerød, Denmark.

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